diameter of the alimentary tube, its important connexion with the nature of the food and the dental apparatus, and the enormous size of the gall-bladder; points, as far as I know, that have not been before specially alluded to.

21 Parliament Street, April 23, 1853.

PROCEEDINGS OF LEARNED SOCIETIES.

ZOOLOGICAL SOCIETY.

March 25, 1851.—William Yarrell, Esq., Vice-President, in the Chair.

1. On a new species of the genus Montifringilla.

By John Gould, F.R.S.

For a knowledge of this species we are indebted to Lord Gifford, by whom several examples were killed in Thibet. It is intimately allied to *Montifringilla Gebleri*, but differs in being of a larger size, in the darker colouring of the head and face, and in the deeper tint of the back and rump; the latter part is moreover ornamented with a patch of blood-red, which has suggested the specific name of *hæmatopygia* as an appropriate appellation; it also differs from *M. Gebleri* in being destitute of the orange-red mark on the shoulders.

Montifringilla hæmatopygia.

Face and forehead brownish black, gradually blending into the light greyish brown of the upper surface; rump stained with blood-red; upper tail-coverts brown, tipped with dull white; tail dark brown, each feather margined externally with white; wing-coverts hoary; wings dark brown, the first four primaries narrowly edged with white, the next five primaries with a broad streak of white along the basal portion of their external webs, terminating in a line with the extremities of the secondaries, which are externally fringed with hoary; spurious wing dark brown, margined at the base with whitish; under surface very light brown, gradually becoming paler, until on the under tail-coverts the hue is buffy white; bill and feet bluish black.

Total length, 6½ inches; bill, ½; wing, 4¼; tail, 2½; tarsi, 1.

2. On some new species of Trochilidæ.

By John Gould, F.R.S.

Mr. Gould exhibited some remarkably fine examples of the *Trochilus Jardinii* of Bourcier, and then characterized the following species:—

Trochilus (—— ?) amabilis.

Crown of the head shining metallic green; chin black; breast beautiful shining blue, with a line of lustrous green commencing at the angle of the bill, passing down the sides of the neck and surrounding the base; upper surface bronzy green; tail-coverts and central tail-feathers greenish bronze; lateral tail-feathers brownish black; wings purplish brown; under surface like the upper, but less brilliant; centre of abdomen and under tail-coverts grey, the centre of the latter bronzy green.

Total length, $3\frac{5}{8}$ inches; bill, $\frac{3}{4}$; wing, $2\frac{1}{8}$; tail, $1\frac{1}{4}$.

Hab. New Grenada.

Remark.—About the size of *T. albirostris.*

PHAËTHORNIS GRISEOGULARIS.

Head, upper surface and wing-coverts bronzy brown; upper tail-coverts rufous; ear-coverts blackish brown; wings purple brown; base of the tail dark brown, the apical third of the two central feathers dark grey, tipped with white, the apical third of the next feather on each side grey on the inner web, buff on the outer web, and tipped with white; the three lateral feathers on each side tipped with buff; under surface sandy buff, with a wash of dull grey down the chin and a crescent of black across the breast; upper mandible black; basal two-thirds of the under mandible yellow, apical third blackish brown; feet yellow.

Total length, $3\frac{3}{4}$ inches; bill, 1; wing, $1\frac{1}{2}$; tail, $1\frac{5}{8}$.

Hab. Columbia.

Remark.—Nearly allied to *P. Eremita* and *P. pygmæa,* but differing from them in being of a larger size, in the total absence of any crescentic black mark on the chest, in having the throat clouded with dark grey instead of buff, and the two central tail-feathers tipped with grey and their shafts black.

3. NOTE ON THE SUBORBITAL GLAND OF THE NYLGHAU.

BY H. N. TURNER, ESQ., JUN.

Among the cranial characters of the genus *Portax* I have adduced the want of a suborbital depression, and the existence of a smooth line running along the surface of the bone; and as I had observed appearances of a suborbital sinus in the living animal, which I could not detect in the dried specimens, I felt much interested in the examination of the parts in one that recently died in the Gardens, and which Mr. Mitchell kindly forwarded to me for dissection.

Externally there is a slight pit immediately in front of the orbit, and anteriorly to it a small longitudinal fold of the skin, in the middle of which is a little round pore, through which exudes a yellowish secretion, furnished by a gland placed just underneath. The gland itself is slightly larger than a hazel-nut, and is laid upon the surface of the bone without any fossa to receive it, but is firmly attached to the smooth line before observed. The tendo oculi, and a few fibres of the orbicularis palpebrarum are attached to it.

The small pit immediately in front of the orbit is merely the space below the tendo oculi, between the gland and the rim of the orbit. In the Nylghau, the existence of a "lacrymal sinus" has usually been acknowledged; but it affords a good example of the incertitude with which we can ever deny that it exists in a species of which fresh specimens have not been examined with a view to this character, and in which no traces of the organ are discernible, either in the dry skin, or in the existence of a fossa in the skull.

4. LETTER ON THE DEAL-FISH, FROM DR. DUGUID TO DR. BARKER. COMMUNICATED BY MR. YARRELL.

"Kirkwall, 5 March 1851.

"In April 1829, I received from Mr. Strang, Sanday, a specimen of a fish which had been found on the shores of that island, with a request that I should give him some information about it. He mentioned that he had met with many specimens during a series of years,—that it was well known to the natives of the island, by whom it was called the *Deal*-fish, and that they often found it thrown ashore, and even occasionally used it as food. I easily ascertained, from the works to which I had access, that it was a fish unknown to the British *Fauna*, but could not determine what it really was. The specimen being a good deal mutilated about the head and abdomen, and in a state of partial decomposition, I did not attempt to preserve it, but drew up as correct a description of it as its condition admitted of, which I sent to Dr. Fleming, along with all the information about it which I could obtain from Mr. Strang, and also a somewhat rough drawing. Dr. Fleming wrote, of date 8th May, 1829, at once determining the fish to be the *Gymnogaster arcticus* of Brunnich, or *Vaagmaer*, as described by Cuvier in his 'Règne Animal,' ii. 246, a native of the seas of Iceland;—at the same time mentioning some slight discrepancies, which more perfect specimens, since procured, have completely removed. With my consent, he drew up a notice of it, which was inserted in the 4th volume of 'Loudon's Magazine of Nat. Hist.,' along with a plate from the drawing sent. This article I have not met with, having merely seen Yarrell's quotations from it. Since 1829 I have met with seven or eight specimens, some of which were mutilated by birds, and some quite entire, and from the latter I have ascertained the existence of ventral fins, which are exceedingly minute and rudimental, and easily overlooked, more especially if the specimen be not quite fresh and perfect. I am now therefore enabled to say with certainty that there can be no doubt of the identity of the fish occurring in these islands with the *Vaagmaer*, as described and figured in Yarrell's Supplement to the 1st edition of his 'British Fishes,' from information supplied by Professor Reinhardt of Copenhagen, and there named *Trachypterus vogmarus*. In the first figure, given at page 14, the ventral fins are much too long and conspicuous, but they are quite correctly represented in the vignette at page 18. The late Dr. John Reid, of St. Andrews, published an article in the Annals of Nat. Hist., June 1849, describing a specimen of the *Trachypterus Bogmarus* thrown ashore on the coast of Fifeshire, in which he says, 'No unquestionably genuine specimen of this rare fish has, as far as I am aware, been hitherto found in the British seas; for the description and figure of the fishes thrown ashore in Orkney, supposed to be specimens of the Deal-fish or *Vaagmaer*, given by Dr. Fleming on the authority of Dr. Duguid, *differ in so many im-*

portant points from the Vaagmaer as must excite doubts as to their identity.' Now Dr. Reid has not stated what the important points of difference are between my description and that of Prof. Reinhardt. It is true there is one important point—important as determining the proper classification of the fish—the existence or non-existence of ventral fins. These I did not detect; but it is not surprising, considering their minuteness, and the mutilated condition of the only specimen I had then seen. We have at this moment three dried ones in the Orkney Museum, not so perfect as could be desired, but sufficiently so to determine this point, as well as the identity of the fish with the Icelandic Vaagmaer. It is strange also that Dr. Reid never mentions the existence of ventral fins in his specimen at all, and that also, while he denies that the fishes thrown ashore in Orkney are the *Deal-fish* or Vaagmaer, he should forget that the popular name *Deal*-fish is strictly of Orcadian origin."

5. ON AN UNDESCRIBED SPECIES OF MEGAPODIUS.

BY L. LLEWELLYN DILLWYN, ESQ., F.G.S., F.Z.S. ETC.

My friend Mr. James Motley, who is now conducting the operations of the Eastern Archipelago Company in Labuan, has lately sent me home a box of zoological specimens which he has collected in that island, and among the birds was the pair of the Megapodius, one of which I now produce; it is, I believe, identical with the species in the British Museum sent home by Mr. Cuming from the Philippine Islands. In the catalogue accompanying the specimens, and in several letters which I have received from him, he has described some of the habits of these curious birds, and deeming that original observations, however scanty, on the habits of almost any animal from that remote region might not be uninteresting to the Society, I have abstracted from his communications to me the following notice respecting them :—

These birds are said to be principally confined to small islands, and to such more especially as have sandy beaches; they are not uncommon in Labuan, but are, however, very rarely to be seen, as they are very shy, and frequent dense flat parts of the jungle, where the ratans grow and where the luxuriance of the vegetation renders concealment easy.

The Malays snare them by forming long thick fences in unfrequented parts of the jungle; in these they leave openings at intervals in which they place traps; the birds, running through the cover in search of food, meeting the obstruction caused by the fence, run along it till they come to one of the openings, through which they push their way and are trapped.

Their food principally consists of seeds and insects.

In walking they lift their feet very high from the ground, and set up their backs something like guinea fowls; they frequently make a loud noise, like the very loud screech of a chicken when caught.

They are very pugnacious, and fight with great fury by jumping upon one another's backs and scratching with their long strong claws.

The eggs are of a fine dark cream-colour, and of very large size, three of them weighing nearly as much as a full-grown bird. According to the general account given to Mr. Motley by the Malays, each bird lays about eight or ten at each time of breeding; the place they select for depositing them is always situated near the beach, and close within the edge of the jungle, and here they bury them in the sandy soil to the depth of about eighteen inches; over the place where they are thus buried the bird collects a large heap of shells and rubbish, so that a person who has seen their nest has no difficulty in finding it again; the eggs thus deposited are left to be hatched by the heat of the sun, and this the natives assert requires between three and four months to complete. Mr. Motley himself found upon breaking an egg which had been thus situated for nearly six weeks, that it contained merely the embryo of a chick, about as much advanced as that of a hen's egg at four days. Some other eggs which were brought him, but which he had no means of ascertaining how long they had been laid, he buried in a box of sand about 3 feet deep and exposed to the weather. At the end of about three weeks a young bird came up, not downy, but covered with little shafts or pens ready to form feathers. One of the Malays employed by Mr. Motley saw it emerge, and said that it just shook off the sand and ran away so fast that it was with difficulty caught. On the next day, when Mr. Motley first saw it, it appeared to him to be about half-grown. From the first it fed itself without hesitation, scratching and turning up the earth like an old bird. Two more afterwards emerged in the same state. According to Mr. Motley, the sexes are alike, except that the naked skin about the head is redder in the male than in the female.

In his investigations respecting the nidification of these birds, Mr. Motley was much assisted by Mr. Low, who is resident in the island.

As the Philippine specimens brought home by Mr. Cuming have not yet been characterized, I propose to name this species

MEGAPODIUS CUMINGII.

Sp. Char. Olivaceous brown above; blackish slate colour with a slight olivaceous tinge below; the feathers on the throat and nape are thinly dispersed, so as to leave that part nearly bare; on the hind head the feathers are somewhat lengthened, forming a kind of crest; bill black at the base, yellowish towards the tip; legs, feet and claws black; the bare skin about the head is redder in the male than in the female.

	in.	lin.
Length from the tip of the bill to the end of the tail, about	14	0
——— of bill from gape	1	1
——— of bill from front	0	10
——— of wings	8	6
——— of tail, not quite	3	0
——— of tarsus	2	1
——— of middle toe	1	11
——— of hallux	1	5

The front toes are nearly equal, the middle toe being rather the longest, and the inner one shortest.

To the foregoing account some additional details of considerable interest may be subjoined. These details, although dated Labuan, July 1850, were not received until after Mr. Dillwyn's communication:—

EXTRACT FROM A LETTER FROM MR. HUGH LOW, DATED LABUAN, 4TH OF JULY, 1850.

"I have been using great exertions to procure for the Earl of Derby a very remarkable Gallinaceous bird, the existence of which I ascertained only three months back; having no books I am unable to refer to its genus, but it is nearer a Guinea fowl than anything else. I heard from the natives that such a bird existed, and that its eggs were occasionally to be procured. I offered a dollar each for all they would bring me; and first one was brought, afterwards five, but I could not succeed in hatching either of these under fowls. The first, after having been set upon for a month, was picked to pieces by its foster-parent, and the chick had apparently but just begun to form. The five eggs were addled. Having learned that the birds abounded on a small island, about a hundred miles along the coast, I hired a boat and five men, and sent them, about fourteen days since, with snares, &c., to endeavour to catch some of the old birds and to seek for the nests, this being the laying season, and to gather plants of *Phalcinopsis*, which grows on the same island (Pulo Tigu and Pulo Guya). They returned yesterday, bringing with them 102 eggs and only two birds, both of which had their legs injured by the snares. The sight of the eggs and birds have perfectly astonished me, the body of the former being no larger than that of a bantam, while the egg is as long, though not so broad, as that of a Chinese goose. The men say that on the different islands they visited they found a good many nests, which are placed at a little distance from the sea-shore, in the jungle of small islands, the spot being invariably marked by a large collection of sticks and branches. The eggs are found about three feet deep in the sand, and the men assure me that the bird has no communication with them except by rasping away the sand. The man I employed has lived all his life on small islands, hunting for tortoise-shell, and well knows the habits of the bird; he says the eggs are hatched entirely by the sun's heat, or rather the heat in the sand. One of the birds he brought died this morning, and I shall put its skin together with some of the eggs in a box, that you may send them to Earl Derby. I do not like to take the liberty of writing to his lordship myself, but if I can succeed in getting a lot of young birds, I shall not fail to send them to him by the very first opportunity. I have placed some of the eggs under fowls, and some in sand out of doors; some also in sand in a warm house, where I can regulate the temperature; and I have hopes of rearing, or at least of hatching, some of the chicks, if the eggs are still good: but I think that by sending the men again in three months' time with snares I might catch a lot of the young ones hatched naturally, and be able to rear them. The bird is said not to be found on the mainland: the eggs are reported excellent eating.

"Aug. 12. Of the eggs I wrote to you so much about last mail, one only has hatched: the chick came up full-fledged from under three feet of sand, and immediately ran about with the most surprising activity. It eats rice, ants' eggs, &c. with the greatest avidity, and as it is now three weeks old, I have every hope of preserving it. More of the eggs appear to have chickens in them, and I hope will hatch. The bird, as I have ascertained, is an undescribed species of *Megapodius.*"

April 8, 1851.—Professor Thomas Bell, Sec. R.S., in the Chair.

The following papers were read:—

1. ON THE STRUCTURE OF THE TEETH OF THE AMERICAN AND INDIAN TAPIRS. BY JOHN TOMES, F.R.S.

It is now upwards of fifteen years since the attention of physiologists and comparative anatomists was drawn to the structure of the tissues which enter into the composition of the dental organs. In 1678 Leeuwenhoek communicated a paper to the Royal Society, on the Structure of the Teeth and other Bones, in which he described the dentinal tubes. His researches, however, were not confirmed by subsequent observers, and indeed were almost entirely overlooked until the period to which I have referred. Purkinjé, in 1835, confirmed the correctness of Leeuwenhoek's observations, at the time unconscious that the tubular structure of the dentine had been previously recognised. He also described the structure of the cementum.

Prof. Retzius was in the same year engaged in examining the structure of the dental tissues, and published the results in 1836. In 1837 Prof. Retzius published a work on the subject, the substance of which was in 1839 printed in our own language by Mr. Nasmyth.

In the latter part of 1837 I was engaged in examining the dental tissues, at that time unconscious that the subject had occupied the attention of the German or Swedish anatomists. In June 1838 the results of my examination were read before the Royal Society. In September of the same year, Prof. Owen read a paper on the Structure of the Teeth, before the British Association. In 1840 the publication of Prof. Owen's 'Odontography' was commenced, and completed in 1845. In this work will be found descriptions of the structure of the teeth of animals belonging to each division of Vertebrata.

In these various essays the authors agreed generally in the main facts of dental structure, and in each successive publication new facts were related. Judging from the amount which had been published, it might have been concluded that the subject was well nigh exhausted. Such however was not the case: many blunders, in the hurry which is incident to a new subject, had been committed and required correction, while many important facts had failed to be recognised. Prof. Owen pointed out that in the Order Edentata the teeth are destitute of enamel, while it is present in the other mammalian orders, with the exception of a few isolated cases.

Having neglected the subject of dental structure for some years, in consequence of more urgent pursuits, in 1847 I again entered on the inquiry, which to me possessed great attractions, not only on account of various modifications which are to be found in the arrangement of the components of the tissues in different animals, but also in minor modifications in the teeth of the same animal.

My inquiries were first directed to human teeth; the results, both as regards structure and development, were published in my 'Lectures on Dental Physiology and Surgery,' 1838. The teeth of marsupial animals next occupied my attention. In this order it was found that the dentinal tubes are continued into and form a considerable portion of the enamel, excepting only in the Wombat. The results of these investigations will be found in the Second Part of the 'Philosophical Transactions' for 1849.

By the help of this Society I have been enabled to make an extensive series of investigations in the teeth of the Order Rodentia, with results which have far exceeded my expectations. Each family, as arranged by Mr. Waterhouse, has its peculiar structure of enamel, an account of which, with illustrations, is published in Part 2 of the 'Philosophical Transactions,' 1850.

Having, by way of preface, given a very cursory and imperfect indication of what has been done in dental structure, or rather of what has been recognised as peculiar to certain groups of mammalian animals, in order to show that the subject is not without importance, I shall proceed to lay before the Society certain peculiarities which I find exist in the teeth of the two Tapirs, and which are, to the best of my belief, confined to those creatures. It should however be understood, that similar conditions may be found in the teeth of other animals, but at present I believe they have not been seen. I have myself examined numerous examples from each of the mammalian orders, and from the great majority of the genera, and have failed to find a condition of dentine similar to that of the Tapir's tooth. Under these circumstances, it may, I think, be fairly assumed to be characteristic of those animals, and hence has a degree of importance which it otherwise would not possess. With this impression, I have thought it desirable that the facts should be recorded.

The dentine of the molar teeth, when exposed by making a longitudinal section through the centre of the crown and fangs, and reducing it sufficiently thin to be viewed by transmitted light, is seen to be composed of tubes which pursue a uniform course. Those which are destined to reach the highest parts of cusps or ridges pursue a straight course, subject to slight undulations, while others, which pass to the sides of the cusps, are turned in the latter part of their course away from the central line of the cusps or ridges; others again, which pass to the lowest points of the depressions on the masticating surface of the tooth, follow a tolerably straight course. The dentine which forms the sides of the tooth is occupied by tubes which in the outer third of their course describe a bold curve outwards, the convexity of which is directed towards the crown of the tooth, but on approaching the enamel turns a little upwards. In the fangs of the teeth, the dentinal tubes, in addition to describing a double curve, are subject to strongly-marked secondary undulations. The dentinal tubes, as they leave the pulp-cavity for the crown of the tooth, have a diameter of about the 7500th of an inch, which is gradually diminished to the 15,000th. When within a short distance of the enamel, they suddenly dilate into a more or less oval cell, from which a few very minute tubes pass off towards the line of junction of the enamel and dentine. The bulbous terminations of the tubes are more constant and larger about the prominences of the cusps, and diminish in size and frequency on the sides of the tooth, where the enamel becomes thin, at the termination of which they altogether cease. The bulbs have an average diameter of about 3450, and are in length about the 1000th of an inch. In addition to the terminal dilatations, the coronal tubes are subject to occasional dilatations in their course. It is by no means uncommon to find instances where a peripheral layer of cells lies underneath the enamel, into which the dentinal tubes pass, and through which an anastomosis is effected; but in no other teeth save those of the Tapir do the coronal tubes terminate in well-marked and uniform cell-like dilatations having distinct parietes. I have pointed out several examples, in my paper on the teeth of Rodentia, in which these peripheral cells are found, but they are irregular in shape, have not distinct parietes, and are entered by the ultimate branches of the dentinal tubes; whereas in the Tapir the cells are formed by the expansion of the tubes, which previous to the expansion give off few if any branches. Some however subdivide once or twice in their course; in which case the smaller of the divisions do not commonly dilate into terminal cells, but form anastomoses with other tubes similarly circumstanced.

In the fangs the dentinal tubes leave the pulp-cavity with a diameter of the 7500th of an inch, and speedily dilate to the 6000th. During the greater part of their course they give off very minute, hair-like, short branches; but when near their termination they increase in size, turn a little upwards towards the crown of the tooth, and send out numerous branches, the majority of which pass from the lower sides of the tubes. The ultimate branches pass into the granular tissue, which, interspersed with irregular cells, forms the outer part of the dentine of the fangs. Near the neck of the tooth the granular dentine exists as a thin layer, which becomes thickened and more opake from the greater number of cells in the lower part of the fang.

Partially obliterated vascular canals enter from the surface of the fang, and proceed in straight lines through the dentine to the pulp-cavity. In the Indian species similar vascular canals proceed from the pulp cavity towards the ridges of the masticating surface, and appear to terminate in loops. They have a diameter of about the 1000th of an inch. In a molar tooth of the American Tapir, for which I am indebted to the Society, vascular canals do not exist in the crown. This difference will, if found to be constant, serve to distinguish the molars of the two species. Near the extremities of the fangs the dentine graduates insensibly into the granular condition, and this again into the cementum, without offering any generic peculiarities.

The cementum is in no part of the fang very abundant, as compared with the amount which is found in the teeth of many other animals. Near the neck of the tooth it is arranged in minute rods or columns, similar to that which I have described as existing in the teeth of many Rodents. In this situation it is destitute of lacunæ; but in tracing it downwards towards the root of the tooth, where it is increased in quantity, lacunæ possessing the usual characters are found. In addition to the lacunæ the cementum is traversed in parts by ill-defined canaliculi, which proceed from the surface of the fang in tolerably straight lines.

In tracing a longitudinal section of a molar tooth downwards from the crown to the end of the fang, it will be seen that at places the dentine has been removed and the space filled up with cementum. Here and in other parts the cementum is abundantly supplied with vascular canals.

The enamel does not differ in any material points from that of the teeth of Ruminants. The fibres have a minutely granular appearance and have a diameter of about the 5000th of an inch. On the sides of the tooth they pursue an outward course, and make one bold curve, the convexity of which is directed towards the masticating surface, while on the crown of the tooth their course is waved and irregular; an arrangement which no doubt adds much to the strength of the tissue in that part where the greatest strength is required.

In the incisor teeth similar peculiarities may be observed, but they are much less strongly marked than in the molar teeth. Vascular canals are, too, of less frequent occurrence in the incisor teeth.

I hope on a future occasion to be enabled to lay before the Society a statement of the peculiarities which pertain to and are characteristic of other groups of animals.

2. DESCRIPTION OF A NEW GENUS OF BIVALVE SHELLS, AND A SEA EGG, FROM NEW ZEALAND.

BY J. E. GRAY, ESQ., F.R.S., P.B.S. ETC.

Mr. Richard Taylor, of Wanganui, New Zealand, has kindly sent to the British Museum a series of marine and freshwater shells, collected by him in 1847. Among many other interesting specimens is one which combines the form and internal appearance of a *Solen* with the hinge-characters of a *Mactra*, and evidently forming the type of a genus not hitherto observed. It may be thus named and characterized:—

VANGANELLA.

Shell equivalve, oblong, transverse, thin, compressed, rounded behind, rather produced and tapering in front, covered with a thin, hard, polished periostraca; the inner surface of each valve straight, with two diverging, thickened ribs just within the stars of the abductor muscles, which are large and far apart, and the upper front edge of the valve double; siphonal inflection short, broad; hinge-tooth of left valve folded together, moderate; of right valve small, separate; lateral teeth short, small, close to hinge-tooth of left valve double; the ligament small, just within the cardinal edge, not separated by any shell plate from the cartilage, and partly hidden from view by the upper edge of the hinge-margin; the cartilage very large, inclosed in a large, elongate, shallow, triangular pit on the upper part of the hinder internal rib.

The position of the cartilage-pit and the internal ribs at once separate this genus from *Spisula*.

VANGANELLA TAYLORII.

Shell rather compressed, white, smooth, covered with a pale brownish-white polish; periostraca darker coloured on the upper part of the front edge; the upper hinder slope irregularly wrinkled with periostraca.

Hab. New Zealand.

ARACHNOIDES ANTIPODARUM.

Body rather convex, with five broad sunken grooves, rather more than one-third the width of the sections of the body, and forming inflexed spaces on the edge of the circumference; ambulacra nearly straight, and regularly diverging, without any isolated pores between the end of the ambulacra and the circumference of the body.

Hab. New Zealand. Coast of Wanganui.

This species is easily known from the *A. placenta* of the North Sea (Agassiz, Monog. t. 21. fig. 25–42) by its being rather larger and considerably more convex, and in the grooves edged above by the ambulacra being broader compared to the sections of the shell. It differs also in having the ambulacra nearly straight and without any isolated pores between them, as in the edge of the shell figured by Agassiz, t. 21. f. 39.

The specimen was unfortunately broken in the carriage from New Zealand, and the part of the shell containing the ovarial pores was destroyed.

The upper and lower part of the shell is supported by compressed perpendicular columns, about one-third the width of the disk; near the oral disk there are placed five pairs of short processes for the support of the jaws; the jaws are triangular; they agree, as does the disposition of the spire, tubercle, and all the other external characters, with the northern species as figured by Agassiz from the specimen in the Museum collection.

3. REMARKS ON THE GENUS HAPALOTIS.

BY JOHN GOULD, F.R.S.

With the view of correcting some errors respecting the members of the genus *Hapalotis*, and of describing two new species, Mr. Gould exhibited an extensive series of specimens, including several species of this curious form of Rodent, from his own collection: viz.—

1. Hapalotis albipes, Licht.

2. Hapalotis apicalis, Gould, n. s.

This new species is about the size of, and similar in colour to, *H. albipes*, but it has larger ears, and its feet, which are perfectly white, as in that animal, are much more delicately formed, and the tail is nearly destitute of the long brushy hairs towards the tip; the eye is also much smaller.

Face and sides of the neck blue-grey; upper part of the head, space between the ears, the ears and upper parts of the body, pale brown interspersed with numerous fine black hairs; under surface white; flanks mingled grey and buffy white; fore feet white, with an oblique mark of dark brown separating the white from the greyish brown of the upper surface; hinder tarsi and feet white; basal three-fourths of the tail brown, apical fourth thinly clothed with white hairs.

	inches.
Length from the tip of the nose to the base of the tail	8
——— of the tail	$8\frac{1}{2}$
——— of the tarsus and toes	$1\frac{3}{4}$
——— from the tip of the nose to the base of the ears	$1\frac{3}{4}$
——— of the ears	$1\frac{1}{8}$

3. Hapalotis hirsutus, Gould.

Mus hirsutus, Gould in Proc. Zool. Soc. part x. 1842, p. 12.

Since this singular species was brought from Port Essington by Mr. Gilbert, at the close of 1841, a second and more perfect individual, also from the northern coast of Australia, has been deposited in the British Museum.

This is the largest species of the genus.

4. Hapalotis conditor, Gould in Sturt's Narr. of Exp. to Central Australia, vol. i. pl. in p. 120; vol. ii. App. p. 7.

5. Hapalotis longicaudatus, Gould, Proc. Zool. Soc. part xii. p. 104.

6. Hapalotis Gouldii, Gray, App. to Grey's Trav. in Australia, vol. ii. pp. 404, 413; List of Mamm. in Brit. Mus. Coll. p. 116.

H. Richardsonii, Gray, on specimens in Brit. Mus.
H. macrotis, Gray, on specimens in Brit. Mus.
H. Mitchellii, Gould, Mamm. of Australia, part i. pl. 15.
Hab. Western and Southern Australia.

7. Hapalotis murinus, Gould, Proc. Zool. Soc. part xiii. 1845, p. 78.

Hab. South Australia and the Liverpool Plains in New South Wales.

8. Hapalotis cervinus, Gould, n. s.

The whole of the head, upper surface and sides of the body, of the most delicate fawn colour, interspersed with numerous fine black hairs on the head and back; whiskers greyish black; nose and under surface white; tail pale brown, lighter beneath; ears very large, somewhat pointed, and nearly destitute of hairs.

	inches.
Length from the tip of the nose to the base of the tail	4½
——— of the tail	5½
——— of the tarsus and toes	1¼
——— from the tip of the nose to the base of the ears	1⅛
——— of the ears	1⅛

This beautiful species was brought from the interior of South Australia by Captain Sturt. It is one of the smallest members of the genus, and is remarkable for the delicacy of its colouring and for the large size of its tail in comparison with that of its body.

BOTANICAL SOCIETY OF EDINBURGH.

April 14, 1853.—Prof. Balfour, President, in the Chair.

The following papers were read:—

1. "On new species of *Caulerpa*," by R. K. Greville, LL.D. This paper will appear in the 'Annals of Natural History' and the Society's Transactions.

2. "Remarks on British Plants, Part III.," by C. C. Babington, M.A. (See p. 427.)

3. "Notes of a Tour in the Hartz Mountains in 1850, Part I.," by W. L. Lindsay, M.D.

This communication consisted chiefly of an account of the Hartz forests, the circumstances which have tended to their destruction, and the measures now taken to preserve them.

4. "On the Characters of the Order *Solanaceæ*," by T. Anderson, F.B.S. The object of this paper was to place before the Society the new arrangement of these plants proposed by Mr. Miers (Annals, Ser. 2. iii. & ix.), and to draw additional reasons for adopting his view from the chemical properties of the plants. He stated that—

"At least so far as our knowledge goes of the chemical history and action on the animal œconomy of the *Atropaceæ* and *Solanaceæ*, a notable correspondence between botanical characters and physiological properties may be observed; or in other words, by this new arrangement, plants of analogous actions are more closely united, a result of no mean importance. As a proof of this statement the *Atropaceæ* from its botanical characters comprehends the genera *Atropa*, *Mandragora*, *Datura*, *Hyoscyamus*, and *Nicotiana*, all of which are eminently poisonous, and with the exception of the last genus, and this rather doubtful, possessed of the power of dilating the pupil and rendering the iris insensible to the stimulus of light. Since the first introduction of the natural systems, this action on the pupil has been considered as a most characteristic mark of the *Solanaceæ*, along with well-defined narcotic properties, but the order was known to contain, besides some plants of very feeble narcotic properties, many others